tended effectually to suppress both cough and expectoration. When this tendency existed, the more stimulant expectorants failed to correct it, but those remedies which aroused the energy of the nervous and reflex functions, and the contractile powers of the bronchia, were the most efficient. For this purpose, warmth to the surface, quinia and brandy in addition to the ipecacuanha in minute doses, rarely failed to give prompt relief. In this way the progress of infantile capillary bronchitis is constantly subject to sudden and extreme changes, which are not so much due to variations in the character of the inflammatory action, as to the influence of the shifting states of the nervous system, either from morbid, or other causes over the reflex functions of respiration, and the expulsive capacity of the air-tubes. The intimate association between the brain, medulla, and lungs, is often interrupted by the slightest causes in the delicate constitutions of children, which are productive of dangerous suppression of cough and expectoration. Thus, any neglect in supplying proper nutriment, or artificial heat when necessary, excessive catharsis, even mild anodynes, or moderate depletion, by acting injurously on the nervous system, and heat generating powers, tended to produce this result.

In every case with a single exception, cataplasms combining warmth and moisture in a high degree, regardless of the state of temperature, were applied constantly to and around the chest, and over the abdomen when enlarged and distended. They were among the most efficient means of promoting expectoration and alleviating the painfulness of cough. As stimulants of vital action in enfeebled circulation and embarrassed action of the heart, they were valuable, and by promoting the activity of the cutaneous circulation, they afforded great relief to internal congestion, cerebral and pulmonic oppression. When febrile reaction was high they constituted the safest, most certain, and efficient sudorifics in our possession.

Occasional moderate cathartics were used, not for depletion, but to prevent constipation and relieve portal engorgement. Of the twenty-one cases, twenty were treated exclusively by the above method, and all recovered. One, treated mainly by expectorants, diffusible stimuli, and counter-irritation, was lost.

ART. VIII.—*The Effects on the Cerebral Circulation of Large Doses of Bromide of Potassium.* By WM. R. WHITEHEAD, M. D., of New York, Physician for Diseases of Women at the North-Western Dispensary, etc.

THAT the bromide of potassium, in moderate doses, should be considered eminently suitable in sthenic cerebral affections would be logically inferred from the experiments of one of the most judicious of observers, M. Martin

Damourrette, who has shown that the action of bromide of potassium produces contraction of the capillaries and subsequently dilatation of these vessels.[1]

At present the therapeutic use of the bromide of potassium is largely predicated upon its supposed property to diminish the supply of blood to the brain, and that irrespective of the dose. This view has been supported by experiments by Dr. Wm. A. Hammond, and possibly by others. He has informed us, in a valuable paper published in the *Psychological Journal* (Jan. 1869), that he "has administered this substance to dogs whose brains he had exposed to view by trephining their skull, and that he has invariably found it to lessen the amount of blood circulating within the cranium, and to produce a shrinking of the brain from this cause." Such experiments apparently accord with the occasional therapeutic effects of this medicine. There are, however, toxic effects of intracranial congestion produced by the bromide of potassium to which possibly attention has not been called in a prominent manner, and such is the object of this brief article. Recently the servant who attends to my office brought to me a small wire mouse-trap containing six mice which had been caught in the basement. I retained them with a view to determine the effects upon them of the subcutaneous injection of carbolic acid. Two of them being subjected to the action of rather a large dose of this substance without appreciably deleterious effect, I reserved them for further experimentation, and proceeded to try the effects of bromide of potassium on the remaining four. The following are the results of experiments on the six mice first caught, and on others subsequently entrapped :—

Expt. 1.—July 16th, 1870. A mouse had fifteen drops of bromide of potassium (twenty grains to a half drachm of water) injected subcutaneously. Bit violently at things within its reach; had tremor, and died almost immediately.

Expt. 2.—Five drops of the same solution were injected subcutaneously into the back of another mouse: Increased activity, frisky, bites at its own tail, and at other things; activity continued for two or three minutes. This mouse's tail was cut to distinguish this animal from the others, and it was turned loose in the cage. Gradually became quiet, and after a minute or two was observed to be dead.

Expt. 3.—Five drops of the same solution were injected into the third mouse: movements active at first, bites at others with vigour; convulsive movements in posterior extremities; death in five minutes.

Expt. 4.—Five drops of same solution injected into fourth mouse: bites at things about it, and at its own tail; gnaws at the throat of first mouse killed so as to draw blood, not apparently to quench thirst, but from an irresistible propensity to bite. Gradually more quiet; death in about five minutes.

Expt. 5.—The two mice which had received injections of carbolic acid had entirely recovered, and were very active. They were decapitated, and the outside coverings of the skull of each removed. There was no intracranial congestion, and the blood which dripped from their necks was bright red. The four mice which had been poisoned with bromide of potassium each had their heads cut off, and the skin stripped from the cranium. The longitudinal and transverse sinus of each was distended with black blood, and the skull of each was darkly congested. On dividing the skull longitudinally there was an accumulation of dark blood between it and the brain. The blood which dripped from the necks of these mice was black. The degree of congestion varied somewhat, and the brain tissue itself did not, except possibly in one case, seem to offer any appreciable congestion. The peripheral portion of the brain, or rather the pia mater, was markedly congested, and contrasted singularly with that of the two mice which had not been subjected to the poisonous action of bromide of potassium.

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[1] Études Expérimentale sur l'action physiologique du bromide de potassium. Par MM. Martin-Damourrette et Pelvet, Bulletin Général de Thérapeutique, pp. 251 and 252, 1867.

Expt. 6.—July 18th, 1870. A mouse caught to-day had five drops of the same solution of bromide of potassium injected into the cellular tissue of the back. Affected like the others by biting at different things; very active, more than before the injection. In two minutes commenced to be quiet: was seized immediately with forceps, dragged from cage, and head cut off with a pair of sharp scissors. Skull not congested but of natural colour. The pia mater was pale. The head of this mouse was cut off before the toxic effects of the bromide of potassium had become manifest.

Expt. 7.—July 20th, 1870. Two mice caught to-day were subjected to the following comparative experiments: One mouse, a full grown and vigorous one, received an injection of five drops of the same solution of bromide of potassium (forty grains to the drachm), which killed it in five minutes. The eyes were projecting, and the palpebral fissure remained dilated; scalp being torn off from the skull, it was darkly congested; marked intracranial congestion, peripheral and affecting the pia mater; blood was black; liver dark and congested; kidneys also congested.

The other mouse, younger and smaller, received an injection of five drops of the same solution. In two minutes, and just before the sedative effect of the drug began to appear, the head of this mouse was cut off. The eyes were not projecting; the palpebral fissure was closed; the blood which dripped from the head was bright red, and not black, as was the case with its mate, and there was no intracranial congestion. Liver very pale, kidneys not congested.

Expt. 8.—Five drops of the same solution were injected into the cellular tissue of the back of an old mouse: during a minute increased activity, then the animal commenced to be unsteady on its legs, turning around and moving about with a slow and staggering gait. On being seized with forceps by the tail and dragged from the cage, was again very active, and tried to bite my hand. Two minutes and a half from the time of the injection the head was cut off. Intracranial congestion very marked; blood venous; pia mater very darkly congested. This mouse was kept twelve or fifteen hours longer in the cage than the others, and without nourishment. The animal came rapidly under the influence of the toxic effects of the bromide of potassium, because in little more than a minute it became staggering in its gait. When seized by the tail with the forceps and drawn from the cage, probably the hope of escape stimulated this mouse to greater activity.

I do not wish to attach undue importance to a few experiments on mice quite easily performed by any one; but there are, however, sometimes, as in this case, physiological straws which may point the way to more complete and extended experimentation.

There is no remedy which deservedly enjoys a higher repute than the bromide of potassium. In sthenic forms of headache, and in a number of conditions intimately associated with uterine complaints this substance is invaluable, and an extended experience of it in these circumstances has thoroughly established my faith in its efficacy. But I am convinced that the bromide of potassium, like many other valuable remedies, is occasionally incautiously used. The indications for its administration would at first sight appear very plain should the physiological dogma concerning it invariably obtain, namely, that the bromide of potassium diminishes cerebral congestion. It is necessary to add, I think, that this remedy also produces cerebral congestion. The enormous doses which are sometimes given should excite the fear that an opposite effect from that intended might be induced, and that rapidly, especially in view of the experiments which I have adduced.

The gist of this article then is to record my belief that the bromide of potassium should be given only in moderate doses to obtain the full therapeutic effect for the relief of cerebral congestion; that the primary action of this substance is to diminish the amount of blood circulating within the cranium, but that subsequently, and particularly in very large or toxic doses the opposite obtains; in other words, that intracranial congestion is induced. Indeed, I am inclined to believe that the *sedative* effects of the medicine are always attended with more or less cerebral congestion.

Dr. Hammond has not given us a detailed account of his interesting experiments on dogs in the article to which I have already referred, neither has he told us the condition of the cerebral circulation as an *ultimate effect* of the bromide of potassium. Further experimentation is needed to clear up this subject thoroughly, and I know of no one who is more eminently qualified to settle the matter by that mode than the author of the experiments above referred to.

NEW YORK: 23 FIFTH AVENUE, July 25, 1870.

ART. IX.—*On Congenital Phimosis.* By JOHN H. PACKARD, M. D., one of the Surgeons to the Episcopal Hospital, Philadelphia.

PHIMOSIS is defined by Dunglison as "a disease which consists in a preternatural narrowness of the opening of the prepuce, so that it cannot be carried behind the corona glandis." He further says: "This affection is most commonly congenital; sometimes it is accidental, and dependent upon tumefaction of the glans, or of the prepuce, as occurs in syphilis."

But the inquiry—what is the normal prepuce?—if followed out in adults only, is one of some difficulty. We find some men with the glans wholly exposed; others with its anterior portion uncovered, and a large number with a prepuce which forms a complete sheath. Occasionally we meet even with a redundancy of tissue, giving the end of the organ the appearance usual in children. It need hardly be said that part of the difficulty lies in the delicacy of the investigation except where the parts are exposed either in surgical examinations or in the dissecting-room; and in the frequent uncertainty whether operative interference may not at some time have been resorted to, in cases admitting of direct study.